

## University of Groningen

### Intelligentie en leeftijd bij volwassenen en bejaarden

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## summary

A cross sectional study of the relation between intelligence and age was carried out with 1621 subjects, representing the population of The Netherlands between 12 and 77 years of age. The subjects were examined with an intelligence test consisting of ten subtests.

The most important conclusions from this study are:

I. The curves of intelligence as a function of age found in our research generally agree with those known from the literature.

a. *The curve of general intelligence rises until the 20th year. After a stationary period a decline sets in at about the age of 32.*

A number of tests of difference (t-test) between performances of different age groups shows that

b. *the level of intelligence increases significantly from 12 until 19 years of age,*  
Since intelligence appears first to increase and then to decline, the question arises: at what age is the highest performance found? The performances of the age groups between 18 and 33 years differ so little that this question cannot be answered precisely. Consequently we shall not be able to speak of a specific peak.

c. *In the period between 18 and 33 years the top performance is given.*

d. *between the top, the 50th, the 65th and the 75th year the level decreases significantly below that of younger age groups,*

e. *after the 65th year the level lies significantly below that of 12 years old.*

II. The literature shows that the relation between intelligence and age depends on the type of test applied and the type of subject examined.

Our results confirm this. With respect to the testtype we found that

a. *with young persons performance on tests which require flexible handling of data is higher than performance on tests which call for a static knowledge based on fixed experience. With older persons this relation is reversed.*

Further it was found that with tests which examine more flexible intelligence the peak of the curve comes earlier and the decline after this peak is steeper than with tests which examine more static intelligence.

In some subtests this static intelligence appears to be specifically determined by educational influences (Vocabulary, Number), but in other cases this is not so (Formboards). We can formulate as a conclusion:

- b. *Static tests which are sensitive to educational influence show a greater increase between the 12th year and the peak of the curve than other testtypes. Further, all tests which examine a more static aspect of intelligence, show, compared with other types, a later peak and a less steep decline of performance after this peak.*

III. The influence of the type of subject was checked by comparing various groups. One must keep in mind, however, that the various classes are correlated. This is the case for sex and type of school attended and also for age and level of schooling.

We found, contrary to data known from other countries, that

- a. *female subjects turn out a lower performance than male subjects.*
- b. *The difference between men and women is especially seen where the level of intelligence of female subjects becomes stationary after the 19th year whereas the level of intelligence of men continues to climb.*

The results for female subjects have been connected with the social position of women. Of women, we think, less intellectual and social demands are made. This agrees with results for inhabitants of rural districts. Classifying the subjects according to the type of municipality in which they live, we found that

- c. *the curve for inhabitants of towns lies above that for inhabitants of transitional municipalities and that the latter curve again lies above the one for inhabitants of rural districts.*
- d. *people living in rural districts reach their peak at a younger age than inhabitants of transitional municipalities or towns.*

The general level of intellectual development was examined by looking at differences in educational level, professional level, and intelligence level. It was found that

- e. *differences in educational level are reflected in differences in the height of the curve.*

The shape of the curves at different educational levels could not be obtained. This was possible, however, with subjects of different professional levels. We found that

- f. *a difference in professional level gives a difference in the level at which the curve lies and that, contrary to many judgements found in the literature*
- g. *the general statement that higher professional levels show less decline with*

*age is not correct. It applies only to tests which generally are not sensitive to age (Vocabulary).*

Since there was no profession classification before the age of 25 years, no data could be obtained concerning the beginning of the curve. Such data could be obtained with the classification according to intelligence level. These data showed

- h. the higher the intelligence level of the subjects, the steeper the rise of the curve between 12 and 20 years.*
- j. the decline after the top performance does not differ very much among the levels examined.*

The following summarizing conclusion can be formulated:

- k. The most important distinction among the curves of the various categories of subjects lies in the level. In addition the greatest difference among the curves is found in the beginning: the higher the level of intellectual development, the steeper the rise of the performance in the beginning of the curve, and the longer this rise can continue with a relatively later peak. The curve does not decline after the peak less strongly with the higher level than with the lower ones. A less steep decline after the peak with a higher level was only found with tests not sensitive to age.*
- iv. A comparison of our results with those of American investigations shows agreement and differences. Agreement was found with the general form of the curve, differences were found in details. Most differences can probably be attributed to technical aspects of the comparison. We found that
- a. a comparison between present-day research and that of years ago is unreliable; partly because of changes in educational patterns,*
  - b. the procedure of score transformation influenced the form of the curve,*
  - c. the adaptation of the test for older people influenced the form of the curve.*

The question of whether changes in intelligence as a function of age occur gradually or abruptly could not be answered from the present data. The clearest argument against an irregular progress is that the clearest "jerk" (a decline at about the 50th year) coincides with a significant deviation of our agesample from the population. The clearest argument for irregularities in the progress was found in the curves of men and women, where both curves show much similarity in irregularity, even though the samples were drawn independently of each other. The question therefore remains open and shall be checked with a longitudinal investigation with our sample.